REMARKS

Claims 1-2,4-10, 12-17, 19, 20, 22, and 24-30 are pending in the subject application. By the present amendment, claims 1, 5, 7, 9, 13, 16, 19, 20, and 22 have been amended and claims 3, 11, 18, 21, and 23 have been canceled without prejudice or disclaimer. New claims 24-30 have been added to emphasize various aspects of applicants' invention. The new claims do not raise issues requiring undue search or consideration over that of the originally submitted claims. Accordingly, entry and consideration thereof is respectfully requested.

Claims 8 and 15 have been objected under 35 U.S.C. § 112 as lacking support in the specification and as being indefinite. In particular the phrase "wherein the frequency of the parent bucket is diminished by the frequency of the child bucket" is objected to by the examiner. Claims 1 and 9 on which claim 8 and 15 depend have been amended to define bucket frequency as corresponding to a number of tuples that fall in the bucket boundary range. Applicants' representative believes that this amendment sufficiently explains what is meant by the frequency of the parent and child buckets. The Examiner's attention is directed to pages 10-11 and Example 1 beginning on page 12 for discussion regarding one way the frequency of the parent bucket can be diminished by the frequency of the child bucket.

Claim 1 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,920,870 to Briscoe et al. in view of U.S. Patent No. 6,507,840 to Ioannidis et al. Claim 1 has been amended to particularly describe the nature of the buckets of the present invention in contrast with the buckets of Briscoe. Claim 1 now recites a method of maintaining a self-tuning histogram having a plurality of existing

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buckets arranged in a hierarchical manner and defined by at least two bucket boundaries that represent a range of attribute values, a bucket volume, and a bucket frequency that corresponds to a number of tuples having attribute values that fall in the bucket boundary range. At least one new bucket is created in response to a query on the database such that the new bucket has bucket boundaries corresponding to a range of attribute values returned by the query and a bucket frequency corresponding to a number of tuples returned by the query. Each new bucket is contained within at least one existing bucket and the new bucket becomes a child bucket having a child bucket frequency and the existing bucket becomes a parent bucket having a parent bucket frequency.

Neither Briscoe nor Ioannidis, alone or in combination, teaches or suggests the method recited in claim 1. The buckets described in Briscoe are subsets of data in the database system such as sets of tables, columns or combinations of data (Column 6, Lines 10-18) and do not feature bucket boundaries corresponding to a range of attribute values and a frequency corresponding to a number of tuples that fall in the range. Therefore, Briscoe does not teach or suggest the claimed methodology. Ioannidis does not teach or suggest a method for maintaining a self-tuning histogram in which a new bucket is created in response to a query such that the new bucket has bucket boundaries corresponding to a range of attribute values returned by the query and a bucket frequency corresponding to a number of tuples returned by the query and wherein the new bucket becomes a child bucket inside a parent bucket. For at least the aforementioned reasons, it is respectfully submitted that applicants' invention as recited in claim 1 9 and claims 3-8, which depend therefrom) is not obvious over the cited art, and this rejection should be withdrawn.

The remaining independent claims have been amended in a manner similar to claim and are therefore patentable over the Briscoe and Ioannidis combination. Therefore claim 9 and its remaining dependant claims 10, 12-15, claim 16 and its remaining dependant claims 17 and 19, and claims 20 and 22 are in condition for allowance for the same reasons as discussed above in conjunction with claim 1.

New claims 24-30 are directed to a histogram tuning system that includes a tuning component that populates an existing histogram bucket with a completely contained child bucked based on query results. None of the cited art teaches or suggests, alone or in combination, such a histogram tuning system.
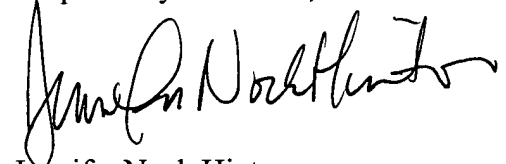
In view of the foregoing discussion it is respectfully submitted that the claims of this application are patentably distinct from the prior art and each from the other and this application is in condition for allowance. Prompt notice to that effect is earnestly requested.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 23-0630 for any additional fees required under 37 C.F.R. § 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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